International Journal of Economics, Commerce and Management
United Kingdom Vol. V, Issue 1, January 2017
http://ijecm.co.uk/ ISSN 2348 0386

THE IMPACT OF INFLATION ON STOCK MARKET LIQUIDITY

A CASE OF NAIROBI SECURITIES EXCHANGE, KENYA

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Abstract

The relationship between inflation and stock market performance has intrigued researchers who have attempted to explain how a nominal variable such as inflation should determine a real variable .Recent research findings have established the existence of a negative relationship between stock market performance and inflation. These findings contradict the hypothesis by Fisher (1930) who argued that stock returns should be positively related with expected inflation, providing a hedge against rising prices. This study investigated the relationship between inflation and liquidity of the Nairobi Securities Exchange. Liquidity of the stock market is vital if the market is to play a significant role in the development by facilitating mobilization of long-term capital. It shows the immense potential that the Nairobi Securities Exchange may have towards fostering the country's economy .The study's objective is to determine the impact of inflation on the liquidity of Nairobi Securities Exchange thus assess the validity of the Fisherian hypothesis using turnover rates at the Nairobi Securities Exchange to draw policy conclusions and recommendations based on empirical findings, Which shed light on the price discovery process at the Nairobi Securities Exchange indicating that investors fail to factor in the effect of inflation on stocks at the securities exchange.

Keywords: Inflation, stock market, security exchange, GDP, Kenya

INTRODUCTION

Stock market is an important institution in a country and is of great concern to investors, stakeholders and the government. It is part of the broader market referred to as financial market that deals in exchange of securities issued by publicly quoted companies and the government (Fabbozi and Modigliani,1995). The provision of liquidity is a very important role played by any

thriving stock market in a country's economy. In this way, the stock market provides investors with an efficient mechanism to liquidate their investments in securities as and when they want.

The performance of a stock market of an economy is of interest to various parties including investors, capital markets, the stock exchange and government among others. Stock market performance is influenced by a number of factors key among them the activities of governments and the general performance of the economy. Economic activities do affect the performance of stock markets. Other factors that affect the stock market's performance include, availability of other investments assets, change in composition of investors, and markets sentiments among other factors (Mendelson and Robbins, 1976)

Inflation

Inflation is a state in the economy of a country, when there is a persistent rise in aggregate level of price of goods as well as services. Repetitive price increase erodes the purchasing power of money and other financial assets with fixed values creating serious economic distortions and uncertainty. Adrangi et al (2000) points out that some portion of inflation rate will be anticipated by economic agents and capital markets. However the unanticipated portion of inflation may surprise equity markets and affect real returns. With increase in inflation, every sector of the economy is affected. Ranging from unemployment, interest rates, exchange rates, investment, stock markets, there is an aftermath of inflation in every sector.

Inflation is bound to impact all sectors, either directly or indirectly. Inflation and stock market have a very close association. If there is inflation, stock markets are the worst affected. Prices of stocks are determined by the net earnings of a company. It depends on how much profit, the company is likely to make in the long run or the near future. If it is reckoned that a company is likely to do well in the years to come, the stock prices of the company will escalate. On the other hand, if it is observed from trends that the company may not do well in the long run, the stock prices will not be high. In other words, the price of stocks is directly proportional to the performance of the company. In the event when inflation increases, the company earnings (worth) will also subside. This will adversely affect the stock prices and eventually the returns.

In Kenya, the 12-month inflation dipped to stand at 4.5 percent in December 2010, lower than the 5.3 percent level at the end of 2009. This reduction came in response to the overhaul of the consumer price index (CPI) by the Kenya National Bureau of Statistics -including the introduction of new weightings and a new basket in February 2010 which showed that prices have not been rising as quickly as feared and that inflation was subdued. Lower inflation facilitated a decline in key interest rates. In July 2010, in a bid to promote economic activity and reduce borrowing costs, the Central Bank of Kenya continued with its policy of monetary

loosening, cutting the Central Bank Rate (CBR) by 75 basis points to 6 percent. While the Kenyan economy has grown and diversified, it remains vulnerable to exogenous shocks, including drought and volatile commodity prices.

Stock Market Liquidity

Stock markets may experience a general increase in price level referred to as a bull market or general decrease in price level referred to as bear market. Stagnant prices or sudden big price movements downward is referred to as stock market crash. Stock market performance is affected by a wide array of factors such as economical, political, international and company-specific issues. The determinants of stock market performance include performance of the economy, monetary policies, fiscal policies, inflation, availability of substitute investments, change of investor preferences and market sentiments. Activities of government and general performance of the economy influence stock market activity and therefore the performance of stock markets.

Monetary and fiscal measures enacted by various agencies of national governments influence the aggregate economies of those countries. The resulting economic conditions influence all industries and companies in an economy positively or negatively which in turn affect the performance of stock markets (Reilly and Brown 1997). Among the main measures of stock market performance are; Stock market indexing, market capitalization and stock turnover. Other stock market performance variables include, market volatility, market risk, returns on the market portfolio, market activity and liquidity. In this study particular attention is paid to stock market liquidity.

Stock market Liquidity and Inflation

The relationship between inflation and stock returns was first defined in the context of the Fisher effect, also known in some literature as the Fisher hypothesis. The Fisher effect is a product of the economic theory by Fisher (1930), who argued that stock prices should be positively related with expected inflation, providing a hedge against rising prices. Contrary to this view, Reilly and Brown (1997) points out that inflation affects the performance of stock markets as it causes differences between real and nominal interest rates thus changing the spending and saving behavior of consumers and corporations. Similarly, an article by the economy watch also reports that when inflation increases, the company earnings (worth) will also subside. This will adversely affect the stock prices and eventually the returns. They argued that the effect of inflation is also evident from the fact that it increases the rates of interest. If the inflation rate is high, the interest rate is also high.

In the wake of both (inflation and interest rates) being high, the creditor will have a tendency to compensate for the rise in interest rates. Therefore, loan lenders will avail loans at a higher rate. This plays a significant role in prohibiting funds from being invested in stock markets. When the government has enough funds to circulate in the market, the cost of goods, services usually go up. This leads to the decrease in the purchasing power of individuals. The value of money also decreases. In a nut shell, for the economy to flourish, inflation and stock market ought to be more conforming and predictable In Kenya, the nature of this relationship cannot be confirmed as positive or negative. Munene (2007) in his study on the NSE established a negative relationship between stock returns and expected inflation in Kenya. He however reported a positive relationship between actual inflation and stock prices. In principle stock markets should do well under conditions of strong economic growth and low inflation.

Nairobi Securities Exchange

The Nairobi Securities Exchange (formerly Nairobi Stock Exchange) (NSE) is the principal stock exchange of Kenya. The securities exchange is a market that deals in the exchange of securities offered by publicly listed companies, corporate bodies and the Government. It began in 1954 as an overseas stock exchange while Kenya was still a British colony with permission of the London Stock Exchange. There was however no formal market, no rules and no regulations to govern stock broking activities. Trading took place on a gentleman's agreement in which standard commissions were charged with clients being obligated to honour their contractual commitments of making good delivery, and settling relevant costs. At that time, stock broking was a sideline business conducted by accountants, auctioneers, estate agents and lawyers who met to exchange prices over a cup of coffee.

According to Smith et al. (2002), the NSE was inactive until 1993, when economic reforms kicked in, resulting in privatization and the relaxation of restrictions on foreign investors and exchange controls. The NSE is a member of the African Stock Exchanges Association. It is Africa's fourth largest stock exchange in terms of trading volumes, and fifth in terms of market capitalization as a percentage of GDP. The Exchange works in cooperation with the Uganda Securities Exchange and the Dar es Salaam Stock Exchange, including the cross listing of various equities. Trading is done through the Electronic Trading System (ETS) which was commissioned in 2006. A Wide Area Network (WAN) platform was implemented in 2007 and this eradicated the need for brokers to send their staff (dealers) to the trading floor to conduct business. Trading is now mainly conducted from the brokers' offices through the WAN. However, brokers under certain circumstances can still conduct trading from the floor of the NSE.

In 2001, NSE was restructured to give rise to three market segments namely; the Main Investments Market Segment (MIMS), the Alternative Investment Markets Segment (AIMS) and the Fixed Income Securities Market Segment (FISMS). The MIMS is the main quotation market, the AIMS provide an alternative method of raising capital to small, medium seized and young companies that find it difficult to meet the more stringent listing requirements of the MIMS while the FISMS provides an independent market for fixed income securities such as treasury bonds, corporate bonds, preference shares and debenture stocks, as well as short term financial instruments such as treasury bills and commercial papers.

Statement of the Problem

The essence of investment is to attain a reasonable return while preserving its purchasing power. To preserve the purchasing power of an investment while earning a reasonable return calls for such an investment to attain returns which are above the inflation rate lest the value of the investment is eroded over time, compromising its purchasing power. The economic framework that defines this plausible setting within the investment realm is a product of the theory by Fisher who sought to explain the relationship between asset returns and inflation. According to the Fisher hypothesis (Fisher, 1930) asset return should at least match the inflation rate to preserve its real value, if not move positively compared with it. This theoretical reasoning also means that stock market returns have a positive relationship with the inflation rate, a position that has been supported empirically by Boudoukh and Richardson (1993) for the United Kingdom (UK) and the United States of America (USA).

Bodie (1976) , in his study on common stocks as a hedge against inflation argues that equities acts as a hedge against inflation as they represent a claim to real assets and, hence, the real change on the price of the equities should not be effected. In such a situation, firms are able to predict their profit margins and since equities are claims not only on current but also on future earnings, which confirms that stock market operates as a hedge against inflation, at least in the long run.

In contrast several studies emerged in the context of US (eg. Lintner (1975), Fama and Schwert (1977), Fama (1981), Modigliani and Cohn (1979), Geske and Roll (1983)) and European economies (e.g. Asprem (1989)) which consistently rejected the Fisherian hypothesis. These studies showed that inflation affected real stocks negatively, but failed to provide an explanation for this anomaly popularly known as “a stock return-inflation puzzle”. Coleman and Tettey (2008) studied the Ghana stock exchange and reported that inflation rate had a negative effect on stock market performance. They further argued that high rates of inflation increases the cost of living and a shift of resources from stock market instruments to consumables hence

a reduction in the demand for market instruments. Inflation is therefore expected to have a negative impact on the market index and the performance of the exchange.

In Kenya, several scholars have carried out extensive studies on the relationship between inflation and stock prices. Munene (2007), for instance, found a negative relationship between expected inflation and stock prices. He however, reported that there exists a positive relationship between actual inflation and stock prices. Nyamute (1998) in his study on the relationship between Stock Prices and Exchange Rates, Interest Rates, Money Supply and Inflation found out that there is a negative relationship between stock prices and the selected variables.

There are however, studies for instance Alagidede (2009), that reported a positive relationship between inflation and stock returns in Kenya thus confirming validity of the generalized Fisher hypothesis. Bekithemba (2010) in his study on stock-inflation relations also concluded that inflation provides a hedge against inflation in Kenya, at least in the short run. Aroni (2011) indicates that inflation and money supply have a positive correlation.

The above synopsis of literature between stock prices and inflation demonstrates the lack of common ground on the nature of the relationship as well as the theoretic reasoning applied to the relationship. Moreover, these studies have looked at the relationship between inflation and stock prices but none has looked at the impact inflation has on liquidity of NSE. Based on this evaluation, a knowledge gap exists regarding the impact of inflation on liquidity of the NSE. Since liquidity of the stock market is vital for it to play its significant role of facilitating mobilization of long-term capital, there was compelling need to examine the impact of inflation on liquidity of the NSE. This study will thus bridge the gap and in that regard seeks to answer the question “What is the impact of inflation on liquidity of Nairobi Securities Exchange?”The study predicted that inflation would have a negative impact on liquidity of the NSE.

Objective of the Study

To determine the impact of inflation on the liquidity of Nairobi Securities Exchange.

Importance of the Study

The findings of the study will be beneficial to academics, investors and policy makers. The information from the study is vital to international and local investors, as well as investment intermediaries who have to use it for their investment strategies. The knowledge of inflation stock relations will also ensure market positioning by investors and investment intermediaries in the case of pending inflation surge. In addition, making decisions on further investments,

withdrawal and retaining levels of investment could thus be made in light of knowledge about the impact inflation will have on stock.

Academics on the other hand whose current literature is contradictory and torn between various schools of thought, will benefit from the findings of the study on the impact inflation has on stock market performance in Kenya confirming research findings that suggest that inflation has a negative effect on stock market performance.

Policy makers are big players in the drive to bring inflation to satisfactory levels, and the knowledge about inflation's impact on stock markets performance could influence their decisions, as stock markets affect production levels, investment and reaction to interest rates which is an integral part of many monetary policies. Forecasting inflation findings also helps government appreciate which economic variables have useful information about the inflation rate, and such information can then be used to regulate its movement.

LITERATURE REVIEW

In theory, there is a case to support the view that since the rate of inflation means an increase in the general level of prices, and since common stocks can be considered as capital goods, then the stock prices should move with the general level of prices. So, when the general inflation rate increases, common stocks should also increase to compensate investors for the decrease in the value of money. In this framework, it is expected that there is a positive relationship between the inflation rate and stock prices. However, as it will be seen in this chapter, early empirical studies have documented a negative relationship between the inflation and the stock markets performance.

This section therefore explores the hypotheses that sought to explain the underlying reasoning for the relationship between inflation and stock market performance as well as the various arguments, methodologies, geographical and market differences presented in the current literature with a view to lay bare the unanswered research question. The literature review contained herein covers the period from the 1930s, when the Fisher hypothesis was put forward.

Theoretical Literature

A number of hypotheses have been advanced in the literature to explain the relationship between inflation and stock market performance. This section will therefore review the relationship between inflation and stock market performance based on existing theories and academic arguments.

The Fisher Hypothesis

Economic theory by Fisher (1930) hypothesized a positive relationship between stock returns and inflation based on the understanding that assets ought to maintain their values against inflation. The Fisher (1930) hypothesis, also known as the Fisher effect, (hereafter used interchangeably) states that nominal asset returns move one-for-one with the expected inflation so that real stock returns are determined by real factors independent of the rate of inflation.

According to Fisher (1930), assets, which represent claims to physical of real assets, such as stocks, should be positively related with expected inflation, providing a hedge against rising prices. If the implied positive relationship between stock prices and inflation does not hold, stock investors will be vulnerable to inflation. In this regard, a rise in expected inflation *ceteris paribus* would result in a rise in nominal returns in an efficient market where prices reflect current and future levels of inflation; hence the notion that stock returns and inflation move in the same direction.

The Proxy Hypothesis

Fama (1981) introduced the proxy hypothesis that sought to explain why stock market prices and inflation have a negative relationship and attributed it to an indirect relationship between both variables and economic activity. The Proxy effect by Fama (1981), acknowledged that the negative relationship between inflation and stock returns is puzzling given the accepted wisdom that common stock, representing ownership of the income generated real assets, should be a hedge against inflation. He argued that the relationship between returns and inflation is not a true relation; it is only the proxy relationship between stock return and growth rate of real GNP with the inverse relationship between stock returns and inflation. It implies that high rate of inflation may decrease the demand for money that decreases growth in real activity.

On the other side the increase in rate of inflation decrease the future expected profit, which ultimately impacts the decrease in stock prices. In accordance with the Proxy effect, the negative inflation and stock return relations are proxying for the positive relationship between stock returns and real variables which Fama (1981) argued are more fundamental determinants of equity values. The negative relations are induced by the negative relationship between the real economy and inflation, owing to both the money demand theory and the quantity theory of money (Fama, 1981). In his paper, which used monthly, quarterly and annual data from the USA between 1953 and 1977, Fama concluded that there was evidence that real stock returns positively related to measures of real activity like capital expenditure, average real return on capital and output, which reflected the variations in the quantity of capital investment with expected return in excess of costs of capital.

Furthermore, he noted that the anomalous stock return and inflation relations are strongly related to measures of future real activity, and this is consistent with a rational expectations view in which markets for goods and securities set current prices on the basis of forecasts of relevant real variables. The result is a demonstration of the inference in the expected inflation and stocks returns relations. This has led to a new school of thought about the interaction of these variables which is now commonly known as the Proxy hypothesis.

Inflation Illusion Hypothesis

Another empirical hypothesis that was developed after the discovery of the negative relations between inflation and stock returns in the 1970s is the Inflation Illusion hypothesis developed by Modigliani and Cohn (1979) who asserted that the correlation between inflation rate and stock returns is as a result of inflation Illusion. They attributed the negative relationship to inflation illusion, and thus the use of nominal interest rates by irrational investors to discount real cash flows.

The Inflation Illusion hypothesis states that investors fail to understand the effect of inflation on nominal dividend growth rates and hence extrapolate historical nominal growth rates even in periods of changing inflation. Modigliani and Cohn (1979) suggested that investors collectively suffer from money illusion and commit two errors in valuing equities: they use nominal rate to discount real cash flows (and fail to adjust to adjust nominal growth rate of dividends) and they fail to recognize the capital gain that accrues to the equity holders of firms with fixed dollar liabilities in the presence of inflation.

Competing Theories

Using likely values of the tax and financial variables, Feldstein (1980) attributed the negative relationship between stock returns and inflation to the higher effective rate of tax on corporate income caused by historic-cost depreciation and the tax on the artificial capital gains caused by inflation, which reduce the real net yield that investors receive per unit capital. Feldstein (1980) observed that inflation generates artificial capital gains due to the valuation of depreciation and inventories. The capital gains, however, are subject to taxation. Thus, corporate face increased tax liabilities in an inflationary situation. The ultimate effect of the inflation induced tax liabilities is a reduction in the real after tax earnings. The rational investors will take into account this effect of inflation by reducing common stock valuations.

In this sense, inflation causes movement in stock prices. Although appealing, this explanation is contextual and is woven around the US tax regime. Fama (1981) argues that taxes could not be responsible for the fall in real share values in the 1960s, when inflation

increased in the USA, because the ratio of taxes to gross income does not support this notion. The tax burden model as an explanation of inflation and stock returns relations is much localized and at best explained the specific period which Feldstein sought to review. The fact that the tax laws are not homogeneous casts doubt on the credibility of the model as a platform or basis to explain the negative relationship within the international context. Given these challenges to the model, it is not surprising that it has not been a popular force in explaining the negative relationship between stock returns and inflation.

Another model that sought to explain stock–inflation relations is provided by Friedman (1977) when looking at the relationship between inflation and unemployment where he argues that inflation uncertainty is positively related to the level of inflation with uncertainty depressing future output because it discourages investment. This implies that since inflation and inflation uncertainty are positively related, a rise in the inflation rate results in depressed prospects for output and thus a reduced dividend growth forecast which affects the denominator of the Gordon Growth Model. While these relationships are noble in their inference of the stock–inflation relations, the model cannot be relied upon in stable inflationary environment.

If the fall in the rate is huge, all other factors remaining constant, the inflation expectations may not be clear, and instead of reduced inflation uncertainty such a fall might attract increased inflation uncertainty. In this context, this model may best define inflation–stock relations in high and volatile inflation environments rather than in areas of stable and low inflation. The introduction of inflation targeting has not helped either because inflation is now at the core of monetary policy decision making. Thus inflation uncertainty is a concern in the short term rather than the long–term where government policy is expected to provide direction.

Empirical Evidence on Inflation and Stock Market Performance

As noted earlier, the relationship between inflation and stock returns was first defined in the context of the Fisher hypothesis (1930), who sought to explain the relationship between asset returns and inflation. For most of the period from the 1930s to the 1970s this theory was the logical explanation for the stock–inflation relationship, as it solidified the notion that the asset's underlying value is maintained in the face of inflation. But as it will be seen below there exists a large body of literature documenting a negative relationship between inflation and stock returns in both developed and emerging economies.

Ram and Spencer (1983) discussed the negative relationship between stock returns and inflation and offered an explanation for this phenomenon. Their empirical tests based on an augmented Fisher-Philips relationship; show that some of Fama's finding may be reversed. The Philips curve shows the relationship between a measure of real economic activity, such as the

rate of growth of real output or unemployment, and a nominal variable, such as the inflation rate. Thus, according to Philips curve, higher rates of unemployment are associated with lower inflation rates and vice versa. It is documented that the Philips curve shifts to the right as inflationary expectations are formed. The shift occurs as demand for higher nominal wages reduce employment at any given inflation rate. This implies that higher inflation rates may be associated with lower real economic activity because of the inflationary spiral.

In analyzing the Fisher hypothesis, Boudoukh and Richardson (1993) examined the contemporaneous relationship between the inflation rate and the stock market. The objective of the study was to determine the effects inflation has on stock market returns. They used annual data on inflation, stock returns and short- and long-term interest rates over the period 1802_1990 covering both the UK and US markets. They regressed 1-year stock returns on the 1-year inflation rate, and 5-year stock returns on the 5-year inflation rate. They reported a negative relationship between the inflation rate and stock returns in the short-term, but in a long-horizon, this relationship tended to be positive.

Coleman and Tettey **(**2008) investigated how macroeconomic indicators affect the performance of stock markets. The objective of the study was to examine the impact of macroeconomic indicators on the performance of stock markets by using the Ghana Stock Exchange as a case study. Quarterly time series data covering the period 1991-2005 were used. Co integration and the error correction model techniques were employed to ascertain both short- and long-run relationships. They established that lending rates from deposit money banks have an adverse effect on stock market performance and particularly serve as major hindrance to business growth in Ghana. Again, they reported that while inflation rate is found to have a negative effect on stock market performance, the results indicated that it takes time for this to take effect due to the presence of a lag period; and that investor's benefit from exchange-rate losses as a result of domestic currency depreciation.

In analyzing the Fisher hypothesis, Omran and Pointon (2001) investigated the impact of the inflation rate on the performance of the Egyptian stock market, in terms of market activity and liquidity. The data analyzed covered the period from 1980 to 1998.Co-integration analysis through error correction mechanisms (ECM) were used to establish long-run and short-run relationships between the variables. Also long-run regressions were performed using ordinary least squares (OLS) to test for co-integration relationships between the variables. They concluded that the inflation rate clearly has had an impact upon stock market performance in terms of market activity and market liquidity. Contrary to the Fisher effect, the relationship was negative in the long and short-run for all market activity and market liquidity variables.

Sari and Soytas (2005) examined Inflation, Stock Returns, and Real Activity in Turkey. The aim of the study was to examine the relationship between inflation and real stock returns in the high inflation emerging economy of Turkey. The study employed wholesale price index (WPI), industrial production index (IPI) and Istanbul Stock Exchange 100 Index (ISE). They used monthly data from the Turkish Central Bank covering the period 1986:1-2000:12 determined data availability. The results from the study suggested a negative relationship between inflation and stock returns.

They also noted that the negative relationship appeared to stem from the negative impact of unexpected inflation on real stock returns. The results further revealed that expected inflation and real returns are not correlated; however, there seemed to be a negative relationship between inflation and stock returns. They also examined the validity of the proxy explanation for the negative relationship between inflation and real returns and the results provided weak support for the proxy explanation. They concluded that Turkish stocks do not appear to be a perfect hedge against inflation.

Shanmugam and Misra (2008) studied Stock return-Inflation relation in India. The aim of the study was to test whether the Indian stock market provides an effective hedge against inflation using monthly data on real stock return, inflation and real activity from April 1980 to March 2004. They concluded that contrary to Fisher's hypothesis, the stock returns and the inflation (unexpected inflation) are negatively related when 24-year period is considered. The real activity and inflation are also negatively related while the real activity positively influences the real return with a lead of about 6 months. Thus their results provide a strong empirical support for the validity of Fama's proxy effect hypothesis in the context of an emerging economy, India.

The results also bring out some unique aspects of the relationship among inflation, real activity and stock returns in India. The real activity seems to lead the decline in inflation rather than vice versa. The negative relationship between real returns and inflationary trends seem to emerge mainly from the unexpected component of the inflation. However they found that, a notable month lag is documented between the industrial production and stock market activity in India.

Inflation and Stock Market Performance in Kenya

Munene (2007) investigated the relationship between inflation and stock prices at the Nairobi Securities Exchange. The objective of the study was to specify and estimate the functional relationship between inflation and stock prices. The study was conducted using monthly data on selected stocks from a sample of six companies listed at the Nairobi Stock exchange, for the

period 2002-2006. The OLS estimation technique was employed to estimate a single equation with the real returns as the dependent variable and explanatory variables as actual inflation, expected inflation and information dummy. A specification associated with error correction modeling (ECM) was applied to capture long-run equilibrium after the variables were differenced to make them stationary. Contrary to Fisher's hypothesis (1930), the study reported a negative relationship between stock returns and expected inflation. The study findings however depicted a positive relationship between actual inflation and stock prices and the dividend information dummy.

Mutai (2011) in recognition of the fact that the market efficiency tests done by other researchers examined whether markets incorporate available information, but did not determine what information the market responds to and to how important this was, studied the macroeconomic factors affecting stock prices on the Nairobi securities exchange. The study empirically tested the relationship between the stock prices on Nairobi securities exchange and Kenya's macroeconomic variables that included; inflation, exchange rates, current account balance, money supply, budget deficit and Treasury bill rates.

The objectives of the study were to identify the macroeconomic variables that influence the stock prices and to estimate a long-run relationship between them, utilizing the VAR technique. Monthly data for the period 1990 to 2002 were used. The model was specified based on the Arbitrage Pricing Theory. Johansen's procedures for co integration were also used and it was found that co integrating vectors existed. The findings of the study suggest that the stock prices and inflation, exchange rates, current account balance, money supply, budget deficit, Treasury bill rates tend to evolve together over time. He concluded that, stock prices are caused by inflation, exchange rates, money supply, budget deficit, Treasury bill rates and GDP.

Olweny and Kimani (2011) investigated the causal relationship between stock market performance and economic growth in Kenya for the period 2001 – 2010, using quarterly secondary data. The objective was to empirically analyze using the Granger casualty test and establish the link between stock market performance and economic growth (i.e. whether stock markets performance causes economic growth or itself is a consequence of increased economic activity). The investigation of the causal relationship was conducted using the Granger causality test based on the Vector Autogressive (VAR) model in order to find the direction of causality between the two variables. From the results they established that the movement in prices in the N.S.E reflect the macroeconomic condition of the country and can therefore be used to predict the future path of economic growth. From this they concluded that stock market has a positive effect on economic growth.

Omondi and Olweny (2011) sought to investigate the effect of Macro-economic factors on the stock return volatility on the Nairobi Securities Exchange, Kenya. The study focused on the effect of foreign exchange rate, interest rate and inflation rate fluctuation on stock return volatility at the Nairobi Securities Exchange. Monthly time series data for a ten years period between January 2001 and December 2010 was used. Empirical analysis employed was Exponential Generalized Autoregressive Conditional Heteroscedasticity (EGARCH) and Threshold Generalized Conditional Heteroscedasticity (TGARCH). The main findings of the research study are as follows: the stock returns are symmetric but leptokurtic and not normally distributed.

The results showed evidence that Foreign exchange rate, Interest rate and Inflation rate, affect stock return volatility. On foreign exchange rate, magnitude of volatility as measured by is relatively low. This implies that the impact of foreign exchange on stock returns is relatively low though significant. Volatility persistence was found to be low but significant. This implies the effect of shocks takes a short time to die out following a crisis irrespective of what happens to the market. There was evidence of leverage effect as measured by λ, 0.6720. This means that volatility rise more following a large price fall than following a price rise of the same magnitude.

Ngigi (2001) investigated the impact of fiscal and monetary policy actions on stock market performance in Kenya. The study sought to answer the question on the nature and extent of the impact of monetary and fiscal policies on the performance of the NSE. It further sought to determine which specific components of these policies (anticipated or unanticipated), affect the NSE performance. Co integration of the variables was used in the estimation process. The values for the anticipated and unanticipated fiscal and monetary policies attained were then used in the estimation of the stock market performance function, as measured by the stock price index. The empirical evidence obtained showed that both anticipated monetary policy actions, and unanticipated fiscal policy actions affect the stock market negatively, whilst unanticipated monetary policy adjustments affects it positively. Anticipated fiscal policy actions on the other hand, were found to have no impact on the stock market. The findings suggested that policy makers need to exercise control.

Muriithi (2010) examined the effects of financial crises on the performance of the NSE. The objective of the study was to investigate whether global financial crises has any impact on the performance of the NSE. He used the NSE 20 share Index as the performance indicator. Data on the NSE 20 share Index was collected from the NSE for the period from the period 1991-2010. The month end indices for the period obtained was analyzed using means and variances using the SPSS statistical package. The study results indicated that there is a significant difference in the performance of the stock market on the year after the crisis hits the

major exchanges though the effects are not very strong to warrant any panics. He also established that the performance of the NSE is low during the financial crises period but immediately after the crises market performance improves.

Aroni (2011) analyzed factors influencing stock prices for firms listed in the Nairobi stock exchange covering the period from January 2008 to December 2010 using inflation, exchange rates, interest rates and money supply. The study used secondary data from NSE and the Central Bank of Kenya statistics. Multiple regression formula was applied to estimate effect of the selected factors on stock prices. The regression results showed that the factors; inflation, exchange rates, and interest rates were significant except money supply which although it had a positive correlation, the relationship was not significant. The result showed that exchange and interest rates had negative correlation to stock prices whereas inflation and money supply had a positive correlation. He concluded that to formulate appropriate investment strategy, investors constantly review current financial and economic conditions, based on which future trends can be forecasted considering the needs of the investors. However the financial market expectation will determine the investment strategy to be chosen. He also noted that financial markets are dynamic, and affected by various macroeconomic factors.

Summary

This section presented a review of the relationship between inflation and stocks based on existing theories and current academic arguments. The reality that inflation can be induced by a variety of different shocks as well as being a product of a reactive and proactive government policy demonstrates the complexity that will continue to befall a ‘minor assumption based’ academic reasoning in the stock-inflation relations. At best, indications are that different economic regimes and structural changes are pivotal in explaining the nature of the relationship between stocks and inflation; hence this relationship will be sensitive to the period used in the analysis and the economic regime of a particular country. This conclusion is based on the existence of different results in time, geographic and economic settings.

From most of the empirical studies shown above, it can be concluded that, contrary to the economic theory and common sense, a significant negative relationship between the rate of inflation and stock returns is found. It is also important to observe that these empirical studies have concentrated mainly on stock prices and returns as indicators of stock market performance focusing on stock markets in developed countries. However, it can be argued that different period of research may have consistent different findings.

In Kenya, the findings on the relationship between inflation and stock market performance are not conclusive since different studies have established different results. The nature of the relationship cannot be concluded as positive or negative. It is also worth noting that the research effort in the NSE has concentrated on stock prices and returns as a measure of performance. However, changes in the inflation rate may also affect other aspects of stock market performance, such as market activity and market liquidity; in turn this study examined the impact of inflation on stock market liquidity and seeks to fill the literature gap on developing countries.

METHODOLOGY

Research Design

This study was conducted using causal research design. According to Mugenda and Mugenda (2003), causal research explores the relationship between variables, that is, the effect of one thing on another and more specifically, the effect of one variable on another. They contended that causal research has the advantage of being relatively cheap and it was considered for the study so as to establish the impact of inflation on the liquidity of the NSE. It analyses the cause-effect relationships between variables. Causal research design attempts to specify the nature of functional relationship between two or more variables. This will enable the researcher to understand how one variable under study affects, or is responsible for changes in another variable.

Causal research is usually used to infer causation or causality. i.e., which variables are the causes (called the independent variables) and which variables are the consequence of effect (called dependent variables). In other words causation means that an independent variable is expected to produce a change in the dependent variable in the direction and of the magnitude specified by the theory.

Population and Sample

A population is a group of individual persons, objects or items from which samples are taken for measurements, it is the group the investigator wishes to make inferences from. (Babbie, 2005).The population of interest in this study were 58 companies listed at the Nairobi Securities Exchange at the end of 2007 and whose shares are actively trading.

Kothari (2004) defined a sample size as the number of items to be selected from the entire population to constitute a sample. The sample for this study consisted of 20 companies making up the NSE 20-share Index as at 31st July 2007. The cutoff date was used since the index constituent companies were revised on August 2007.Including the newly listed companies

would not enable adequate analysis as some of these new entrants did not have adequate data. It is worth noting that prior to the revision of the Index constituents in August 2007, the previous revision had been in 2003 therefore the sampled companies will have been consistently in the Index for most of the sample period.

The Index constituents were considered to be sufficient in number to generalize the findings for the entire stock market and also form an adequate representative since they cut across all the segments of the NSE. A period of ten years running from January 2002 to December 2011 was analyzed. This ten year period was selected since it includes the period when the stock market was most vibrant following the successful initial public offer by KENGEN up to the period of the post election violence when investor confidence was eroded and market activity drastically reduced.

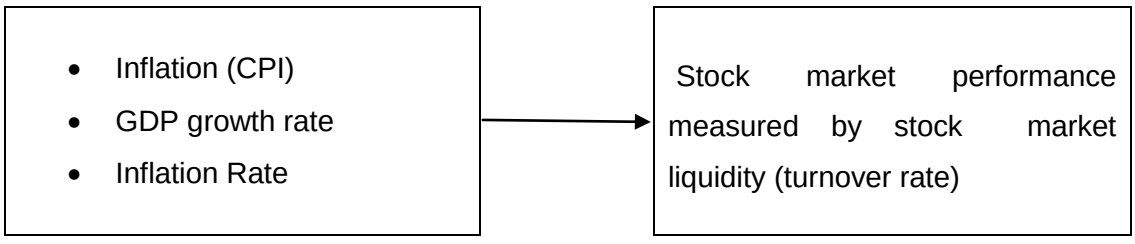
Data Analysis Approach

The forecasting models for stock – inflation relationships were explored. Inflation was measured through the consumer price index (CPI) while stock market performance measured by the turnover rate.

Conceptual Model

The conceptual framework of this study spells out the relationship between stock market performance (dependent variable) and inflation (independent variable). The study therefore sought to investigate the effect of the independent variable fluctuations (Inflation rate) on dependent variable (Stock market performance). The conceptual model as brought out from the literature review in this study is illustrated in the figure below.

Figure 1. Conceptual Model



The relationship between stock markets performance and inflation is illustrated in the context of the Fisher's model. The prediction that equity will act as an inflation hedge is what constitutes the Fisher effect. The Fisher effect expresses the nominal rate of interest (r) as the sum of real rate of interest plus the inflation rate:

$$1 + r = (1 + R)(1 + I) \quad (1)$$

$$r = R + I + RI$$

Where, R- is the real rate I- is the rate of inflation per annum, RI is the multiplicative component which is assumed to be small and which can therefore be ignored. The above equation (1) then changes to:

$$r = R + I \quad (2)$$

Generally, the Fisher effect states a nominal rate of interest has embedded an inflation premium sufficient to compensate investors. From the hypotheses reviewed earlier, the stock market's liquidity is a function of the impact of inflation. The empirical test on the Fisherian hypothesis was accomplished by estimating the equation below:

$$MAL = f(INF, INT, GDP) \quad (3)$$

Where, MAL is the stock market liquidity, INF is the inflation rate, INT is the interest rate and GDP is the GDP growth rate. MAL is the dependent variable and it was used to regress the other independent variables (INF, INT and GDP).

The outcome of the regression would be the variance on the dependent variable as resulting from the impact of the independent variable. Stock market liquidity was measured by the value of traded shares as a percentage of total market capitalization (the value of stocks listed on the exchange) that is, VALUE TRADED*100/MCAP where MCAP – is the market capitalization. Inflation best defined as a sustained increase in the general price level leading to a fall in the value of money was measured by the Consumer Price Index (CPI). This is a weighted price index that measures the monthly change in the prices of goods and services.

In theory, during periods of high level of inflation stock markets are worst affected resulting in low market turnover. Since the rate of inflation means an increase in the general level of prices, consumers will have less money to spend hence a shift from stock market instruments to household goods hence adversely affecting the stock market activity and liquidity. In principle stock market activity and liquidity is high when inflation is low.

Empirical Model

The study investigated the relationship between stock markets performance (in terms of liquidity) and inflation in Kenya for the sampled period; in order to assess the validity of the Fisher hypothesis at the NSE. Stock market performance was measured by the market liquidity. This measures the ability of the market to absorb large order flows without significant changes in prices, capturing the quantity effect of liquidity. A liquid market is characterized by a small impact on the market prices following the execution of large orders. A high ratio implies that a large order can be executed with only a small price movement while a low ratio suggests

inability to absorb a large order without a large price movement. Stock market liquidity was measured by the value of traded shares as a percentage of total market capitalization.

This study employed a model used by Fama and Schwert (1977) to test the Fisherian hypothesis at the NSE. The model was formulated on the assumption that stock markets are efficient and that real returns and inflation rate vary independently of each other. In order to accomplish the empirical test of the Fisherian hypothesis the following model was developed:

$$MAL = \beta 0 + \beta_1 INF + \beta_2 GDP + \beta_3 INT + \varepsilon t \quad (4)$$

Where, MAL = the stock market liquidity

$\beta 0$ = the vertical interception

β_1, β_2 and β_3 = the regression coefficients of the independent variables.

INF is the prevailing level of inflation, GDP is the prevailing economic condition and INT is the prevailing interest rates. εt is the error term assumed to be randomly and normally distributed with zero mean and constant variance. Based on the Fama and Schwert (1977) framework, stocks are a hedge against expected inflation if $\beta=0$ which would support the Fisherian hypothesis. If a negative relationship exists between stock market liquidity and inflation, it may be related to the proxy hypothesis.

In analyzing the data, descriptive statistics of all the variables was done to examine the trends in the data followed by linear regression to establish the relationship between the dependent variable and independent variable. A data analysis tool of statistical packages for social sciences (SPSS) was used to analyze the data. R^2 and T-test using P value was estimated to measure the strength and the significance of the relationship between the variables under study (Anderson et al, 2009). The SPSS was used to present the findings from the study undertaken.

The Data

The study relied wholly on annual secondary data from 2002 to 2011 obtained from the NSE. To determine stock market liquidity, turnover rates of companies forming the NSE 20-share index was considered because it includes relatively stable and best performing 20 listed companies at the NSE. The index is also based on a geometric mean of average prices of the constituent companies which are equally weighted, and that it is reviewed periodically to ensure that it reflects an accurate picture of market performance.

Data on inflation was captured using Consumer Price Index. Data on inflation and economic activity and interest rates was obtained from the annual economic reports published by the World Bank.

ANALYSIS AND FINDINGS

Summary Statistics

Table 1: Market Capitalization

	Mean	St. dev	Median	Mode	Min	Max
Market Capitalization	6.2670	1.39	3.2	1.7	0.1865	0.1995
Market Turnover	1.8716	1.39	3.1	1.5	0.1765	0.1895
Inflation Rate	11.55	0.39	5.5	9.8	0.1765	0.1895
GDP growth rate	4.20	0.09	2.5	2.6	0.1775	0.1899
Interest Rate	17.05	0.69	12.5	8.8	0.1555	0.1795

Table 1 depicts that large capitalization stocks in the NSE trade at significantly higher multiples of earnings and book value than small cap stocks. It also indicates that market capitalization is strongly correlated to valuations as measured by multiples of earnings and book value. The data suggests that accounting measures such as Revenues and Fixed Assets have weak correlations with earnings multiples.

It also shows the market-adjusted volatility across the years. It indicates that volatility is higher for the outside succession and forced departure subsamples. On average, the markets experience the largest volatility increase, and volatility begins to increase approximately one year prior to the turnover event. The volatility increase appears to persist for about two years for forced turnovers and about one year for outside successions.

Table 1 further shows the annualized fitted standard deviation of inflation rates, averaged across the different regions. Interestingly, when the standard deviation is less than 1 the inflation rates are at their highest. Reductions in liquidity have a meaningful positive effect on the volatility of stocks. As shown in table 3, the variability in the standard deviations and means reached a low during the years 2004 to 2006 and the last four years(2008-2011). Further, while there have been shocks such as the post-election violence and more recently increased dollar rates these events have had a major impact in the economy as a whole. With inflation expectations well anchored, the Central Bank of Kenya has been able to provide liquidity in response to financial disruptions without causing uncertainty about the long –run goals of policy.

Table 1 also depicts the GDP mean rate recorded in the economy over the eleven years. The high mean rate shows a positive growth in development. This was because when consumers spend more, the economy grows, naturally creating inflation. If the Central Bank of

Kenya, decides that the economy is growing too fast-that demand will greatly outpace supply-then it can raise interest rates, slowing the amount of cash entering the economy.

It is CBK's responsibility to closely monitor inflation indicators like the Consumer Price Index (CPI) and the Producer Price Indexes (PPI) and do its best to keep the economy in balance. There must be enough economic growth to keep wages up and unemployment low, but not too much growth that it leads to dangerously high inflation. The target inflation rate is somewhere between two and three percent per year.

The table 1 further depicts the highest mean of interest rates in the annualized years. This may have been caused by the fact that actual or anticipated changes in the inflation rate cause corresponding changes in interest rates. Lenders know that inflation will erode the value of their money over the term of the loan so they increase the interest rate to compensate for that loss. As evidenced in the table above, long-term loans made at the real rate of interest without an inflation premium would have actually produced negative returns due to the declining purchasing power of the shilling. Lower interest rates put more borrowing power in the hands of consumers. And when consumers spend more, the economy grows, naturally creating inflation. If the Central Bank of Kenya, decides that the economy is growing too fast-that demand will greatly outpace supply-then it can raise interest rates, slowing the amount of cash entering the economy.

Relationship between Inflation and Liquidity

Appendix II depicts that the GDP increased from 0.6 in the year 2000 to 3.8 in the end of 2001; however the trend decreased again from 3.8 in the previous fiscal year to a low of 0.5 in 2002. From 2003 the GDP continuously increased up to 2007 where it recorded a high of 7.0. The GDP faced a fall from 7.0 mark in 2007 to 1.5 mark in 2008 with a consistent increase being recorded from 2009 to 2011. In 2010 the economy faced a GDP of 5.6 and a subsequent inflation rate of 4.0. This means that GDP growth is much higher than inflation which is a positive sign towards growth. As per Appendix II, it was only for few months in 2008, where growth was around 1.5% and inflation around 26.2% ,which means inflation was higher than GDP, this period could well be termed as the worst period in the Kenya's economy due to recession. This could have been in demand-pull inflation where in case there is a high demand in the goods market, GDP rises, but this high demand also causes the prices to go up thus causing inflation.

Later on, the Central Bank of Kenya may decide to take steps in order to reduce inflation and cut down the economy (slow down the GDP growth) or to accelerate the growth (but at the expense of some inflation). It may be concluded that there is a positive correlation between

inflation and GDP. The Gross Domestic Product, the broadest indicator, which measures prices for all finished goods produced domestically, including those for governmental purchase, capital investments, and net exports.

Model Fitness Results

Table 2: Prevailing Interest Rate on Turnover Rate

	Unstandardized Coefficients	Standardized		
Model	**B Std Error**	**Coefficients Beta**	**t-statistics**	**Sig.**
Constant	3.134 22.408		0.140	0.890
R	2.499 1.909	0.295	1.309	0.207

The regression equation is given thus

C = ao + al R

C = 3.134 + 2.499

(22.408) (1.909)

T* = 0.14

r = 0.292 r^2=0.087

Where, C-the turnover rate

R-Prevailing interest rate

The results from table 2 show a positive relationship between the dependent and the Independent variable, the coefficient of regression being 2.499. The t-statistics stood at 0.14 with the implication that the variable is significant at 21% since it is greater than 5%. This means that it is not significant.

Table 3: Prevailing Inflation Rate on Turnover Rate

	Unstandardized Coefficients	Standardized		
Model	**B Std Error**	**Coefficients Beta**	**t-statistics**	**Sig.**
Constant	45.245 11.1292.		4.066	0.001
D	-18.168 9.486	-0.411	-1.915	0.071

C =bo + bl D

C = 45.245 – 18.168 D

(11.129) (9.486)

T* = 4.066, r = -0.411, r^2 = 0.169 Where, C- is the turnover rate. R-Prevailing inflation rate.

Table above shows a negative relationship between the dependent and independent variables the regression coefficient being (-18.168). The t-statistics is 4.066 which indicate that the variable has 7.1% significance level.

Table 4: Prevailing Interest Rate on Government Development Stock Rate

	Unstandardized Coefficients	Standardized		
Model	**B Std Error**	**Coefficients Beta**	**t-statistics**	**Sig.**
Constant	1.002 0.529		1.894	0.074
D	-1.676 0.045	-0.087	-0.372	0.714

D = 1.002 – 0.01676 R

(0.529) (0.045) T* = 1.894, r = -0.087, r^2 = 0.008

D-Government Development Stock Rate

R-Prevailing Interest Rate

From table above, the result shows a negative relationship between the dependent and the independent variable, the regression coefficient is (-0.01676). The t-statistics is 1.894.

Correlation Analysis Results

Table 2 depict that the value of coefficient of correlation (r) is 0.295 which shows a weak positive correlation. The coefficient of determination (r^2) stood at 0.087. This indicates that only 8.7% of the total variation is accounted for by the independent variable while the remaining 91.3% is accounted for by other variables. Though there is a positive relationship between the dependent and the independent variables, the value of the correlation co-efficient shows that there is a weak positive relationship between the two variables. The values of the coefficient of determination also stressed that only 8.7% of the total variation in the dependent variable is accounted for by the independent variable while the remaining 91.3% is accounted for by other variables.

Table 3 depicts that the value of the coefficient of correlation (r) is -0.411 which shows a weak negative correlation, while the coefficient of determination (r^2) is 0.169 which means that 16.9% of the total variation of the dependent variable is accounted for by the independent variable and the remaining 83.1% is accounted for by other variables.

The level of significance is 7.1% since this is greater than 5% significant level; it means it is not significant. That means that it may not necessarily be contributing to the variation in the dependent variable.

Table 4 shows that the value of the coefficient of correlation (r) is -0.087 which shows a very weak negative correlation, while the coefficient of determination (r^2) is 0.008 which means that about 0.8% of the total variation is accounted for by the independent variable and the remaining 99.2% is accounted for by other variables. The level of significance is 0.714. This is greater than 5% significant level i.e. less than 95% confidence interval; it means that it is not significant.

Analysis of Variance Results

Tables 2 show that the significant level shows that the independent variable may not necessarily be contributing to the variation in the dependent variable. The positive relationship implies that as inflation rate increases, interest rate increases, stock market capitalization rate also increases with a concomitant decrease in the Net Present Value (NPV) of the stock exchange and therefore a reduction in the size of the exchange. This means economic growth and development will be retarded.

Table 3 shows that the negative relationship implies that as inflation decreases, GDP rate increases, stock market capitalization rate decreases and Net Present Value of the stock exchange increases therefore increasing the size of the stock exchange. This means that there will be increase in economic growth and development.

Table 4 shows that the explanation is that the independent variable may not necessarily be contributing to the variation in the dependent variable .The negative relationship implies that as interest rate increases, government development stock rate decreases and the size of the stock exchange reduces. Hence, economic growth and development is retarded.

Regression Analysis Results

As depicted in Tables 2 the reason for the positive relationship between the dependent and the independent variables lies in the fact that investors are willing and will always commit their funds (invest) in businesses with good profit and quick turnover while taking less risk.

As shown in Table 3 the reason for the negative relationship between the dependent and the independent variables is that government development stock is issued in the stock exchange and if the rate is increases, investors will patronize the stock exchange thereby increasing the size and hence economic growth and development.

Table 4 illustrates that the negative relationship implies that investors will invest in business with good profit and quick turnover while being risk averse. Since, as interest rate is increased; investors will prefer to invest in the banks than to invest in the stock market.

Discussion of Results

Long-term inflation occurs when the money supply (currency and check writing deposits) grows at a faster rate than the output of goods and services. When there is more money available than is needed to accommodate normal growth in output, consumers and businesses want to purchase more goods and services than can be produced with current resources (labor, materials, and manufacturing facilities) causing upward pressure on prices. This is often described as "too much money chasing too few goods."

Over a shorter term, inflation can result from various shocks to the economy. Food and energy price shocks are common examples of this in Kenya. The price of a critical commodity such as fuel may rise suddenly and sharply relative to other prices. Since the market does not have time to adjust other prices downward in response, a short-term increase in overall prices occurs.

The rate of inflation is sometimes reported with food and energy omitted so the long-term, underlying (or "core") inflation rate is revealed.

Governments need to control high levels of unpredictable inflation since it can severely disrupt the economy, cause uncertainty in financial decisions, and redistribute wealth unevenly. The tools they have available include: monetary policy (increase or decrease the money supply), fiscal policy (change the amount of taxes and governmental spending), and various controls on prices, tariffs, and monopolies. Many nations (including the Kenya) choose monetary policy as their primary tool since it has proven to be very effective, it is less disruptive to market operations, and it is easier and quicker to implement since adjusting the money supply does not require legislative approval as would, for instance, changing the tax structure.

Monetary policy is almost always carried out by a government-controlled central bank that is usually somewhat insulated from political pressure. It is given the responsibility of maintaining an orderly market and juggling the sometimes conflicting goals of steady growth, low unemployment, and low inflation. The governments of some nations require the central bank to maintain a low, positive rate of inflation (usually well under 3%) as the over-riding goal of their monetary policy. They must keep the money supply at a level that accommodates steady growth in goods and services, but is not so high as to cause excessive inflation or so low that deflation (an overall decrease in prices) results.

Summary

Stock market is neither single nor even a dual market but rather a network of specialized financial institutions which in various ways, helps to bring together supplier and users of long-term capital fund. These institutions include Securities and Exchange Commission, the Stock

Broking firms, Issuing Houses and Government Establishments. The stock market can be classified into two, the primary and secondary market. The primary market is concerned with the offering of new issues or the initial issuance of securities in the exchange. In respect of a new issue, a firm has to deal at one time or the other with the following in conjunction with the exchange.

However, the types of securities traded are primarily of two types; debt and equity. Debt instrument are financial claims with an obligation by the issues to pay interest at intervals and to redeem the issues at a future date. Equity capital on the other hand refers to the capital of the owner of the firms, ordinary shares. Equity claims is viewed as a source of permanent capital with no contractual payment by the firms.

The secondary market on the other hand is a market where already existing shares and stocks are traded. The Nairobi Securities Exchange Market constitutes a vital organ of our modern socio-economic system, which is characterized by large-scale production requiring huge capital. However, whatever yardstick one may employ to assess the performance of the Nairobi Securities Exchange towards investment growth, clear achievements have been recorded.

From the result of the analysis, interest rate exerts positive influence on stock market turnover rate; government development stock rate exerts negative influence on stock turnover rate while interest rate exerts a negative influence on government development stock rate. In other words, if interest rate is increased, stock market capitalization increases, government development stock rate decreases and size of the stock exchange decreases. Economic growth and development is retarded. Also, if government development rate is increases, stock market capitalization decreases and size of the stock exchange increase. Economic growth and development is enhanced.

CONCLUSIONS

This study provides a simple correlation between Securities market liquidity and inflation in order to evaluate the impact of inflation on the liquidity of the Nairobi Securities Exchange. The study used ten-year pooled data over 2002-2011 for twenty firms making up the NSE 20-share index. The study employed simple regression to estimate a single equation with the stock market liquidity as the dependent variable and explanatory variables as inflation, interest rates and GDP growth. From this study, it is evident through the regression analysis that stock market liquidity is correlated with inflation.

In analyzing the collected data, the results revealed that there is a negative relationship between inflation and stock market performance. Looking at historical trends, Kenya has in the

past been characterized by high levels of inflation. This could have had a negative effect on the stock returns thereby impacting negatively on investors' participation at the NSE. The finding of this study therefore informs the monetary and fiscal policy agents on the need to effectively manage inflation in the country at a level conducive for the growth of investment in the stock market.

From the findings of this study it can be concluded that Inflation rate has a negative impact on the liquidity of the Nairobi Securities Exchange. These findings from are consistent with other studies as discussed earlier. This therefore shows the immense potential that the Nairobi stock exchange may have towards fostering the country's economy should the Kenyan government promote a saving culture and consequently improve investments income of the populace through appropriate policies. The Capital Markets Authority as a regulator should work to ensure that impediment to stock market growth such as legal and other regulatory barriers are addressed. The results show that stock market liquidity is negatively related to inflation, and therefore do not provide a perfect hedge against inflation in contradiction to Fishers (1930) hypothesis. This observation points to the type of investors at the NSE, and the information available to investors at the stock market. This calls for efforts directed to increasing information available to investors and investor education on investing in the stock exchange. The findings from this study also emphasize on the role of the stock exchange market in directing economic growth i.e. the Nairobi securities exchange has been found to be a leading indicator for economic growth. Therefore there is need to identify factors that have significant effect on the securities exchange return. This will enable investors make rational decisions in order to maximize returns. The regulator will also ensure that measures are put in place to ensure fair play in the market.

Based on these findings, the study presents recommendations pertinent to the policy makers, investors, financial market regulators and future researchers. The study recommends that government through its policy makers should come up with policies that will help stabilize GDP growth rate, Interest rate and Inflation rate thus creating investor confidence in the securities market. This will have a significant impact on the performance of the Nairobi Securities Exchange thus foster economic growth. The regulator should ensure that all the market players comply with the policies and regulations in a bid to ensure efficiency and effectiveness of the bourse.

LIMITATIONS OF THE STUDY

A major limitation of the study is the problem concerning data in the Kenyan economy, which lacks relevance and reliability. Different data sources give different data for the same variable.

To maintain consistency, the study relied on data published by the World Bank and the Nairobi Securities Exchange. The cost of buying information from the NSE is also high. This influenced the extend of access to the required information for the study objective of this study. In addition, secondary data was used in the data collection which is subject to limitation. Secondary data has the limitation of: data being out of date, incomplete data, incompatible format for internal comparison and data inaccessibility.

The periods 2002 to 2011 was used in the study. However, the period of 10 years is not sufficient to provide an objective analysis. A longer period of 20 years or more would be sufficient to provide an objective analysis.

The empirical model applied in this study is based on the assumption of an efficient market. However, the NSE like other stock markets in developing countries has exhibited low levels of efficiency due to unavailability of information. This limited the conclusions arrived at by this study.

SCOPE FOR FURTHER RESEARCH

This study has explored current literature and theory on stock–inflation relations, and has recommended areas to be considered for analysis that can be applied to future research. Volatility of returns in financial markets can be a major stumbling block for attracting investment in small developing economies (Rajni and Mahendra, 2007). The stock market being an important institution in an economy and for a country to experience growth, the stock market should be efficient.

Researchers may conduct further studies and identify other macro-economic factors that significantly affect stock returns. Therefore further studies should focus on macro-economic factors such as: Money supply, monetary policy, fiscal policy and industrial production. This can be facilitated by availing data for free to students and other researcher with interest in studying the stock market, factors affecting the market returns and market efficiency. In addition, other factors should be studied other than the macroeconomic factors as examined in this study. Behavioral factors should be studied to establish whether they affect stock market performance.

Further studies on persistence of news on stock return will be useful to investors in making rational investment decisions and aid the regulator in policy formulation. This will help not only in determining the impact of news on stock returns, but narrow it down to good news and bad news and the persistence of the news and stock return volatility. This study was confined to NSE, whereas further study could be done covering other countries in emerging economies in the region e.g. East African community countries.

Various theories have been put forward to explain the negative relationship between stock returns and inflation reported in recent research findings. These explanations include among others a correlation between expected inflation and expected real economic growth (the "proxy hypothesis"), the hypothesis that investors may irrationally discount real cash flows using nominal interest rates; changes in the expected return and risk aversion (i.e. the equity risk premium) and the inflation non-neutralities tax code which distorts the accounting profits. It is important that research is carried out to assess the validity of these hypotheses in the Kenyan context in order to obtain an explanation of the findings of this study.

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APPENDICES

Appendix I: Companies Listed at the Nairobi Securities Exchange, 2011 Source: NSE

AGRICULTURAL
1. Eaagads Ltd
2. Kapchorua Tea Company
3. Kakuzi
4. Limuru Tea Co. Ltd
5. Rea Vipingo Plantation Ltd
6. Sasini Ltd
7. Williamson Tea Kenya Ltd

CONSTRUCTION AND ALLIED
8. Athi River Mining
9. Bamburi Cement Ltd
10. Crown Berger Ltd
11. E.A Cables Ltd
12. E.A Portland Cement Ltd

ENERGY AND PETROLEUM
13. Kenol Kobil Ltd
14. Total Kenya Ltd
15. Kengen Ltd
16. Kenya Power & Lighting Co Ltd
17. Express Ltd

COMMERCIAL AND SERVICES
18. Kenya Airways Ltd
19. Nation Media Group
20. Standard Group Ltd
21. TPS Eastern Africa (Serena) Ltd
22. Scan Group Ltd
23. Uchumi Supermarket Ltd
24. Hutchings Biemer Ltd

TELECOMMUNICATIONS & TECHNOLOGY
25. AccessKenya Group Ltd
26. Safaricom Ltd

AUTOMOBILE & ACCESSORIES
27. Car and General (K) Ltd
28. CMC Holdings Ltd
29. Sameer Africa Ltd
30. Marshalls (E.A) Ltd

BANKING
31. Barclays Bank Ltd
32. CFC Stanbic Holdings Ltd
33. Diamond Trust Bank Kenya Ltd
34. Housing Finance Co. Ltd
35. Kenya Commercial Bank Ltd

Appendix II: Inflation Rates, G.D.P Growth Rates and Interest Rates

Year	GDP Growth (%)	Inflation Rate (%)	Interest Rate (%)
2000	0.6	10.0	22.3
2001	3.8	5.7	19.7
2002	0.5	2.0	18.5
2003	2.9	9.8	16.6
2004	5.1	11.6	12.5
2005	5.9	10.3	12.9
2006	6.3	14.5	13.6
2007	7.0	9.8	13.3

2008	1.5	26.2	14.0
2009	2.6	9.2	14.8
2010	5.6	4.0	14.4
2011	4.5	14.0	15.0

Source: Worldbank.org/indicator

Appendix III: Market Turnover Rates

Year	Equity Turnover	Market Capitalization	Turnover-Rates
2000	3,631,036,290	1,305,965,537,980	0.00278
2001	3,089,638,792	1,124,900,255,030	0.00275
2002	2,921,176,781	1,062,214,867,888	0.00275
2003	15,251,146,219	2,446,274,081,106	0.00623
2004	22,323,702,671	3,629,237,834,388	0.00615
2005	36,568,676,406	4,826,865,278,440	0.00758
2007	5,856,540,513	9,133,929,614,280	0.00064
2008	97,523,693,157	11,026,738,355,406	0.00884
2009	38,164,601,352	9,101,154,187,645	0.00419
2010	110,323,925,759	13,070,339,183,857.10	0.00844
2011	60,239,427,163	12,429,617,545,686.40	0.00485

Source: NSE

Appendix IV: List of Abbreviations

CBK	Central Bank of Kenya
CPI	Consumer Price Index
ECM	Error Correction Modeling
GDP	Gross Domestic Project
GNP	Gross National Product
IPI	Industrial Production Index
KNBS	Kenya National Bureau of Statistics
NSE	Nairobi Securities Exchange
OLS	Ordinary Least Squares
VAR	Vector Autoregressive Model
WPI	Whole Price Index